

Tories discuss limit on liberal arts courses

Proposals to limit liberal arts courses in colleges of higher education are being discussed by the Conservative Party. At a policy group meeting last week plans to encourage shorter, vocational courses were put forward. The talks are taking place in the light of the Oakes committee deliberations on the management of higher education and it is unlikely that official policy will be determined until the committee has made its recommendations.

Oakes committee to publish report after Christmas

The Oakes committee reviewing the management of higher education in the public sector has agreed on the outline of a final recommendation and hopes to publish a report soon after Christmas. Although no formal vote was taken at last week's meeting of the committee, it was agreed in principle to recommend the creation of a national body to administer more than 75 per cent of the costs of polytechnics and colleges with large amounts of advanced level work. Under the scheme, detailed in THE TIMES last week, the remaining portion would be paid directly by maintaining local authorities and the overall costs raised through local government and the rate support grant.

Liverpool lecturers urge action over pay docking threat

Lecturers in Liverpool are urging their union to take legal action if their pay is docked because of a work-to-rule. The issue was due to be discussed by the national executive of the National Association of Teachers in Further and Higher Education at a meeting today. Last week Liverpool's education committee agreed to dock the pay of the lecturers, who are protesting at the local education authority's failure to implement a new agreement on teaching hours and other conditions of service. The decision has yet to be ratified by the city council, which meets on November 9.

Industry tops student choice

Only 20 per cent of final-year undergraduates have definitely ruled out a career in business and industry, according to a 1976 survey carried out by government departments and public bodies. One student in four said he firmly intended working in them. That makes it the most popular career choice, followed by academic research which was the firm intention of 16 per cent and definitely rejected by 33 per cent. Teaching was ruled out by 38 per cent and the firm intention of 13 per cent. The survey, by Market and Opinion Research International, included 882 first year male undergraduates in 18 British universities. It knocked on the head the myth that the Civil Service is a sought-after profession—only 3 per cent of the students were intent on entering it.

Teacher training decision provokes row in Ulster

A row has erupted in Northern Ireland over a decision by Queen's University, Belfast, to avoid Government reductions in teacher training numbers by taking fee-paying students on to post-graduate teacher training diploma. The postgraduate fee is £750. Strict guidelines laid down in March by Lord Malchett, the Minister of State, set the intake quota for the university course at 90 students, and the number of bursaries available was fixed at the same level. But Professor Henry Macdonald Knox, head of the education department at Queen's, admitted this week that the university had enrolled nearer to 170 students, many of whom were paying fees.

Congregation supports trial period for student speakers

Oxford University congregation has voted to allow students to speak at its meetings for a two-year trial period. The 15 to 13 vote does not, however, settle the issue. The vice-chancellor, Sir Rex Richards, announced before the election began that he had decided to allow students to give all members of the congregation the chance of expressing their opinion. Members of the broad left who are campaigning for a central student union picketed the Sheldonian Theatre and carried placards as members of congregation arrived for the debate. The principal of Lincoln College, Mr. John Bonaguidi, submitted the resolution putting it forward without expressing an opinion on it.

Universities cool on pay protest

AUT members is expected to join in. The AUT has written to 300 leading academics asking them to give their support to the protest by resigning from the AUT. The response from most vice-chancellors has been sympathetic. In addition, some lecturers who were not lobbying were encouraging their colleagues as a gesture of support for those who were. Mrs Williams, Secretary of State for Education, last week agreed to meet a delegation from the AUT on the morning of the day of action.

Petition plan for PCL deportee

Students of the Polytechnic of Central London are circulating a petition to protest against a Home Office decision to deport Mr. Kolibri Zokai, an Iranian student enrolled on the polytechnic's HND mechanical engineering course. The Home Office withdrew permission for Mr. Zokai to remain as a student in June 1976. A subsequent appeal and the intervention of Mr. Geoffrey Flinck, although the polytechnic's board declared that Mr. Zokai is a home fee student, the Home Office maintains that he is not.

Edinburgh withdraws from NUS

Edinburgh University's Faculty of Education has withdrawn from the National Union of Students in a referendum held on campus last week. Over 900 students took part in the vote and voted overwhelmingly in favour of joining the Scottish Union of Students in preference to the NUS. In the final count, 1,200 said they would join the Scottish Union, 786 said they would stay in the NUS and 1,000 were undecided. Mr Keith Laidlaw, secretary of the university's student union, said this week that there had been two major reasons for the withdrawal of the Faculty of Education from the NUS. The first was the union's failure to represent the faculty and the second was the union's failure to represent the faculty's interests.

Fee waiver for many foreign students likely

Almost 75 per cent of overseas students in Britain will have their fees waived from 1979 if the Government's new £120m package to aid poorer foreign students is approved by the Cabinet. At least 50,000 of the 68,000 foreign students at universities and colleges in the 1979-80 academic year will gain fee exemption under the latest proposals now being reviewed by two Cabinet sub-committees, the Department of Education and Science and other interested Government departments. The 68,000 total is the lowest to be projected by the DfES for foreign student numbers, which now stand at 83,000.

Cardiff report criticized

The package aims to introduce a system of positive discrimination for poorer students at the expense of those from the old-elite and wealthy developed nations. Following detailed discussions in the past month between Government departments three groups of students are expected to gain exemption from fees: those from the Third World, whose countries receive economic aid from Britain; those who are displaced under the title 'academically gifted'; and those who are selected by special bodies. Under the plan, initiated by Mrs Williams, Secretary of State for Education and Science, the remaining students from America, Europe and the other rich nations will be asked to pay the full economic rate of more than £2,000 a year.

Final soft OU line on public awareness

The final report of an Open University working party on academic standards has further softened a clause on sensitivity to public opinion. The working party, set up following allegations of Marxist bias in some courses, has also now emphasized the importance of the collective role of teams compiling them. The university's academic board was to discuss the report at a meeting yesterday. Its recommendations will be considered by Senate on December 13. In its original document the working party urged that courses should be 'written in a manner sensitive to public opinion'. A second draft scrapped this wording, and substituted a reference to the 'duty' of all public universities to be aware of public opinion. Now the

Rectification of pay anomaly in stages

The Government's response in the University Teachers' Panel. The scales needed to rectify the anomaly expected during the next two weeks and seems likely to include some rectification, in several stages, of their pay anomaly. The lecturers are now awaiting the decision of the Department of Education and Science after the passage of the claim through the negotiating machinery. The present delay may well have been caused by the need for the Government's sub-committee on pay to agree to the Government's offer.

Local authorities flex muscles on Oakes constitution

The Oakes committee is still deeply divided on the constitution of the national council it intends to establish to fund polytechnics and colleges. At a meeting two weeks ago of the committee, which is reviewing the management of higher education in the public sector, the powerful local government interests represented made it clear that they would not accept a Department of Education and Science proposal that local authorities should have only seven representatives on the 24-member council.

Stick to applied research SRC tells polys

Research in polytechnics should be concentrated on 'applied problems of economic and social relevance', a Science Research Council report out this week makes clear. The SRC polytechnics committee, which prepared the report, continues to provide special funds, though only at £100,000 a year, for applied research projects involving collaboration between polytechnics and industry, central or local government.

Coventry college merger decided

Coventry City Council this week approved by 28 votes to 25 the long-awaited merger between Warwick University and Coventry College of Education. The recommendation is now to be sent to Mrs Williams, Secretary of State for Education and Science.

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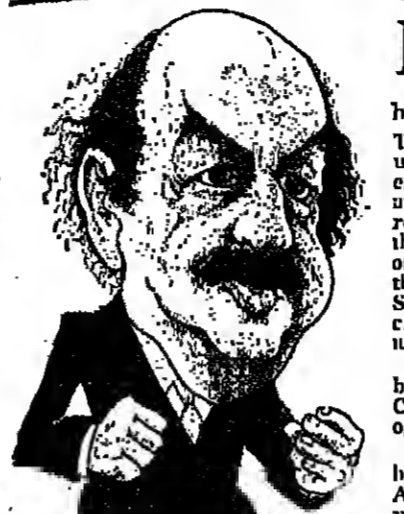
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Professor Gould ducks out of BSA

Professor John Gould has refused to appear before the professional ethics committee of the British Sociological Association to discuss the 'naming of names' in his controversial report on Marxist influences in higher education.

The BSA has expressed deep concern about the use of names and fears that it could lead to blacklisting in universities and colleges. In the letter Professor Gould maintained: "It would indeed be an extraordinary code of professional ethics which could be invoked to complain about the use of publicly available source material or which made it an offence to indicate that individuals have composed books or articles containing views or statements from which one powerfully and legitimately dissents."

Penetration, published in September, had, he claimed in the letter, "simply reproduced without comment or amendment certain lists which others had published in 1976 and 1977 and which had already received wide publicity."

There was nothing unethical about the use of publicly available documents and since this was the sole matter under complaint by the BSA, Professor Gould said he was not prepared to meet the committee. "The BSA has expressed deep concern about the use of names and fears that it could lead to blacklisting in universities and colleges. In the letter Professor Gould maintained: "It would indeed be an extraordinary code of professional ethics which could be invoked to complain about the use of publicly available source material or which made it an offence to indicate that individuals have composed books or articles containing views or statements from which one powerfully and legitimately dissents."

Tories claim NUS successes

by Jane Feinmann

The National Union of Students' executive has adopted a large number of Tory policies over the past six months although most members are left wing, the chairman of the Federation of Conservative Students alleged this week.

Speaking at the foundation's southern regional conference in Bournemouth Mr David Wilks said the two Conservatives on the 17 member executive had managed to persuade their colleagues to make seven major reversals of policy. Among them, Mr Wilks cited the NUS executive decisions to repeal the policy of denying a platform to racist and fascist speakers, to suspend student unions which have Jewish societies, and to reform student union finances.

Applied research gets too much money—Sir Brian

by David Dickson

Research funding has swung too far towards applied science at the expense of basic research, Professor Sir Brian Flowers, rector of Imperial College, London, has warned. Sir Brian was speaking in Strasbourg during the annual assembly of the European Science Foundation, shortly after being elected president for a second three-year term.

RMC asks Oakes for more funds

by Peter David

Senior staff at the London Regional Management Centre have written to the Oakes Committee on the management of higher education in the unaffiliated sector asking for changes in funding. A submission from Professor Keith Alan-Smith, the centre's director, and Dr Ralph Horvitz, its deputy, says that the amount of money it has received may be "below a critical minimum" for it to be effective in coordinating the work of the management departments associated with it.

Two occupations called off by students

Students who occupied the administration building at Aberdeen University two weeks ago in protest at the university's investment in companies alleged to have interests in South Africa called off their occupation last week.

Warning of young unemployed backlash to Holland proposals

by Peter David

Unless there is quick action by the Manpower Services Commission the first phase of its youth opportunities scheme may result in a "backlash" from unemployed young people, Mr Bill Douden, education secretary of the National Association of Teachers in Further and Higher Education, warned this week.

Heriot-Watt priority appeal

Lord Thomson of Monifieth is urging at his installation as Chair of Heriot-Watt University on Saturday, said the university's strong case to make for when restrictions on speaking cases.

The timing of the appeal is Heriot-Watt's plea for the work it is doing in the north of Scotland. He promised staff and students that "it will be a support for the philosophy of the university which is to encourage and support the private sector in its work."

Biologists 'do not fear unknown dangers of DNA research'

Most biologists think the potential dangers of recombinant DNA research are negligible, even though strict safety precautions are necessary, a leading scientist has claimed.

The remark was made by Sir John Kendrew, director of the European Molecular Biology Laboratory at Heidelberg, at a public meeting held during the annual assembly of the European Science Foundation in Strasbourg last week. He said that although recombinant DNA research is a new and untested method of genetic engineering, it is not a dangerous pathogen, there were no major differences between the hazards of recombinant DNA and those of natural DNA. Secondly, many thousands of experiments had been carried out in this field without the appearance, let alone the escape, of any changed organisms that were remotely dangerous. Similarly, tests already carried out had shown that the hazards of recombinant DNA experiments had become so altered by many generations of culture under laboratory conditions that they were incapable of existing in their natural environment, the human gut.

OND may get mandatory grant status

by Maggie Richards

A hint that technical examination courses, such as the Ordinary National Diploma and the Ordinary National Certificate, are likely to receive mandatory grant status shortly has come from Mr Oakes, the Minister of State for Higher Education. He has also revealed that discussions are to be held later this year between the Business Education Council and the Technical Education Council on the role of part-time courses in higher education. He was speaking on Monday at a two-day conference on industry education held at the Lancashire College for adult education. Unemployment, he said, was a world-wide disease which was becoming more and more acute. "In all countries it is the young who are worst hit. This poses social problems, most notably potential disaffection and political alienation. Answering questions Mr Oakes said he was concerned about the present discretionary grant status of examination courses such as the OND and the ONC. "It is absurd that somebody can be doing an OND course on a discretionary grant, and have their application for a mandatory grant turned down, while somebody who is doing a degree of the lesser caliberities and get none."

£30,000 p.a. for 'Ruskin of North'

The Department of Education and Science has approved the development of the new northern residential college for adults in Barnsley. The college, which will offer courses from September 1978, is to receive an annual £30,000 grant from the DES.

Public accountants urge local control

The control of higher education in the unaffiliated sector should remain with local authorities, according to the Chartered Institute of Public Finance and Accountancy in its evidence to the Oakes committee, published last week. The institute's submission rejects the idea of transferring control to central government or all local authorities, but argues for a new management structure based on a central representative body supported at regional level by bodies similar in concept to the existing regional advisory councils. Under the proposed structure the central body would have ultimate responsibility for the approval of courses within nationally determined resources levels. The regional organisations, reporting to it, would assess the need for courses in their area and the costs involved. Each would be controlled by local education authorities.

Loss of award blame shared

by Bert Lodge

The Ombudsman has blamed the Kingston Polytechnic and University for a former polytechnic student losing her chance of a postgraduate award. The polytechnic failed to complete the application form and the university failed to accept her name for the award. The Ombudsman said that the "possibilities" for the award were "certainly" being informed her from then on, and would undoubtedly have received the award had she been notified. This was worth £1,657. The student had to finance her own education for the year.



Come to the cookhouse door, boys: a photograph of the cookles lading out stew to men of the 2nd Battalion the Cameronians on cockles near Glasgow just before the First World War. It is in an exhibition of 49 photographs recording over 100 years of Glasgow at war which starts today at Glasgow University Library Exhibition area.

ASSOCIATION OF UNIVERSITY TEACHERS

National Meeting & Parliamentary Lobby

November 16th 2 p.m.

Central Hall, Westminster in support of a just pay settlement

The Gould report

Starting in The Times next Monday, Ian Bradley assesses the reaction of academics to the allegations in the Gould report about marxist influence in university and polytechnic courses.

THE UNIVERSITY OF WESTERN ONTARIO

London Canada

STATISTICS AND ACTUARIAL SCIENCE GROUP

The Statistics and Actuarial Science Group of the Department of Mathematics, The University of Western Ontario, invites applications for an anticipated position. Preference will be given to applicants with demonstrated records of scholarly achievement in the area of probability theory. During the interview candidates will be asked to present a paper on a topic related to the area of research. Salary and benefits are negotiable. Current salary minima are: Assistant Professor \$17,000; Associate Professor \$20,000; Professor \$28,000. Subject to funds being available the effective date of the appointment will be July 1, 1978. Applications should be addressed to:—

1878/773

The Director, Statistics and Actuarial Science Group, Department of Mathematics, The University of Western Ontario, London, Ontario, Canada N6A 5B8.

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Apply with complete resume on academic and professional background, list references, and with copies of degrees, including personal data such as family status (wife's maiden name, names of children; age and sex), home and office addresses, telephone numbers, to:—

University of Petroleum and Minerals, c/o Miss Elisabeth Whittechurch, Gables Trading Services Ltd., Brougham House, 6, 7 & 8 Sackville Street, Piccadilly, London W1X 2BR.

Interviews are due to take place in London at the end of November.

Open learning consortium urged for FE

A proposal to form a national open learning consortium for further education colleges has been put forward by Mr Richard Freeman, director of the National Extension College at Cambridge.

Mr Freeman made the suggestion to a one-day conference on open learning and further education held at Barnet College of Further Education last Friday. It would act as a central advisory, information and pressure group.

The conference, sponsored by the NEC and Barnet College, was designed to give colleges an opportunity to discuss alternative open learning systems, and to consider the problems of establishing and running such programmes.

Case studies on various open learning methods were outlined at the conference by representatives from Barnet, Nelson and Covington Open College in Lancashire, and the Rowhaston Adult Education Centre in Sheffield.

Mr Freeman said it was not feasible to talk in terms of spending large sums of money or creating a massive Open College on the lines of the Open University. He went on to outline the different roles which a new national consortium or standing conference might fulfil.

There were still reactions of "blank amazement" from many further education establishments, when the adoption of an open learning system was suggested. It was inevitably rejected as impossible until the achievement of other colleges were studied, he said.

Mr Freeman wanted to see information on the operation of these schemes made more readily available through a national consortium. He thought it possible that the group itself might establish research projects and pilot studies.

The consortium could also produce training packs for lecturers using an open learning approach, he suggested. It would provide advice on tutoring, counselling and production of course materials.

Colleges, he thought, could join forces through the consortium to press for more resources to be made available, and their demands would be stronger as a group than as isolated institutions.

Public criticism will not affect MSC's plans

Senior members of the Manpower Services Commission made it clear this week that the commission would not be influenced by public criticism of its plans for the new £168m-a-year training programme for the young unemployed, due to get under way next year.

The MSC's intention to run the schemes with fewer than 30 area boards to cover the whole country has been widely criticized. The Council of Local Education Authorities, the National Association of Teachers in Further and Higher Education and a host of pressure groups have all said the number is too few and their membership too restrictive.

Mr Gerry Fowler, MP for the Wrexham and former minister of state overseeing higher education, told a National Union of Students conference over the weekend that the MSC structure was "a monstrous piece of bureaucracy".

It disregarded entirely the suggestion in the Holland report, on which the programmes are based, that young people should have a say in running their own programmes.

He also criticized the MSC's plans to merge the Employment Services Agency and the Training Services Agency under a single directorate. "Part of the objective there is to make almost impossible a living off of training and a rapprochement of education and training to central government."

But Mr Geoffrey Holland, head of planning at the MSC, told the conference that the commission was determined to involve young people in running the schemes, even if not on the main area boards. He said he would see that every young person involved in every level, but the commission would try to build up "networks of involvement" at local level, to which some control over resources might be devolved.

Besides writing the MSC report, Mr Holland has been appointed director of the programme to which



Members of the London Youth Dance Theatre performing at the House of Education, London University, last weekend. The programme is organized by dance section of the National Association of Teachers in Further and Higher Education.

Government policies 'have hit quality of college courses' subjects-warning

Technical colleges are finding they cannot develop new courses in engineering and sciences because the cost of staff and equipment is too great, say experts.

Mr Richard Beale, director of Glasgow College of Technology, said he has seen a similar situation in his country's prosperity. But as a product of the present economic situation their development will be from certain.

Being laboratory based they are more expensive in terms of staff, buildings and equipment. It is not possible to run courses like this unless you have a certain amount of money, he said.

Mr Beale said that the government's policy of restricting the supply of teachers was a "major problem" for technical colleges. He said that the government's policy of restricting the supply of teachers was a "major problem" for technical colleges.



The Times Higher Education Supplement (London) Room 541 Tel: (202) 636 8765 National Press Building Washington DC

In his final article on diversity in American higher education, our correspondent discusses the deep resistance to "central interference"

Paying the administrative price of pluralism

An argument used by one of the many people who have written to the *New York Times* about the controversial Bakke case is that Government interference with university admissions policies could lead to a "bureaucratically inspired conformity".

A decision by the Supreme Court in Bakke's favour, the common view, is that it would mean a return to a "national" approach to admissions.

A few weeks ago Mr Joseph Califano, Secretary of Health, Education and Welfare, rejected the idea of any kind of "national" achievement tests because they would limit the right of states to control their own systems of education. He called the proposal a "nationalist" scheme and an attempt to "undo the work of the states".

Califano's rejection was not surprising. He is a strong supporter of state control of education. He said that the states had a "diversity" in their educational systems that was a "strength".

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Alaska tops spending league table

Alaska, America's largest state, continued to spend more per head on higher education last year than any other state, *The Rhode Islander* has reported. In real terms, spending in the state has risen by more than 10 per cent since 1967.

The figures appear in the annual chart in the *Chronicle of Higher Education*, which is prepared by Professor M. M. Chambers from the department of educational administration at Illinois State University.

Altogether America's 50 states are spending \$1,527,000m of public money on higher education this year. Appropriations to universities and colleges are one-fifth more than those of 1975-76, and nearly 3.5 times the \$450,000 appropriated 10 years ago.

Allowing for inflation, however, spending has gone up only 6 per cent in the past year.

Rhode Island spent 40 per cent more on higher education in 1976-77 than in 1975-76, but in terms of how much it spent as a fraction of its income, the state is still less than halfway up the list, at twenty-ninth.

'A positive investment for all concerned'

An exhaustive inquiry into going to university argues that the benefits far outweigh any disadvantages.

A college education pays off handsomely. Its economic returns to a country more than offset all the costs. A society's cultural advancement depends on higher education. And the health, wealth and happiness of individuals, their family relationships and their ability to cope with life's problems are continuously enhanced by a college education.

These are the main conclusions of one of the most detailed attempts yet undertaken to answer the controversial question: is a university education worth it?

Dr Howard Bowen, a specialist in the economics of higher education, has spent three years analysing the results of hundreds of research studies on the subject. "The evidence leads unmistakably to the conclusion that higher education, taken as a whole, is enormously effective and productive", he says in his study, published last week.

His conclusion has been given considerable publicity in view of the steep rise in the cost of higher education, and the worry about unemployed graduates and the doubts raised by the phenomenon of the "overeducated American".

By far the most important practical impact of college is on family life. Dr Bowen's research concluded that college tends to delay the age of marriage and reduce the birth rate. It increases the thought time, energy and money devoted to the rearing of children, and this shows up in higher development among the children of college-educated people as compared with the children of people with less education.

The English-Speaking Union

English Language Competition

The English-Speaking Union wishes to announce the launching of its Language Competition, designed to encourage new ideas in the field of learning and teaching English.

ELIGIBILITY: Entries can be accepted only from individuals living, or working in Institutions based, in the United Kingdom.

ENTRIES: Entries should describe practical projects which make an original contribution to the improvement of teaching and learning of English, with emphasis on the use of English as a medium of international communication and understanding.

The following areas in the field of language studies are suggested, but the list is not meant to be exhaustive or exclusive: training of teachers; teaching materials; testing techniques; foreign language learning in foreign countries; courses in broadening dictionary development; approaches to grammar; audio-visual aids.

SUBMISSION OF ENTRIES: Entries must be in the form of a typewritten article of not more than 5,000 words, prefaced by a summary on one sheet of paper of not more than 300 words.

DATE OF ENTRY: Entries should be submitted between 28th March and 30th June 1978. The results will be announced in October, 1978, and the judges' decision will be final.

AWARDS: The judges are empowered to recommend up to three awards of £500 and ten commendations worth £50 each. The award winners will receive a medal and the award commended a certificate.

Copyright will be retained by the candidate but those who submit suitable entries may be offered commercial backing in order to develop their ideas.

Further information may be obtained from:

Mr D. H. Hicks, MBE BA MBM, Director of Education, The English-Speaking Union, Dartmouth House, 37 Charles Street, London W1X 8AB

Mr Merritt said that the government's policy of restricting the supply of teachers was a "major problem" for technical colleges. He said that the government's policy of restricting the supply of teachers was a "major problem" for technical colleges.

Offenders' treatment for study

The first systematic attempt by a British police force to evaluate new methods of treating young offenders is now under way at the department of social administration at Lancaster University.

The project will study the effects of various treatment programmes on young offenders. It will be based on the Lancaster University's research into the effects of various treatment programmes on young offenders.

Women's college pays up over job bias

Smith College, America's largest private women's college, has agreed to pay \$136,000 to 143 women employees who said they were victims of sex discrimination.

The United States Labour Department said the women, past and present employees, had been paid less than men doing the same jobs. The college, which is in Northampton, Massachusetts, had agreed to make the payments.

Smith is now faced with more charges of sex discrimination by two former professors of English. The women say they were denied tenure, which effectively meant their dismissal, because of their sex.

Black chosen to head largest institution

A black is to head America's largest university. Dr Clifton Wharton, President of Michigan State University, is to be the new Chancellor of the State University of New York.

The post has been vacant since the former Chancellor, Dr Ernest Boyer, was appointed United States Commissioner of Education. Dr Wharton was the first black

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Maggie Richards on Sheffield's approach Mapping out routes to adult education

A step has been taken towards reaching the vast number of "unfulfilled" adults who are not participating in adult education in Sheffield, where a research team of six has compiled data on the city's present provision.

The first part of their work—a mapping exercise to discover those taking part in adult education and where they live—has now been published.

The report says adult education students in the city are generally house-owners, and employers, managers or professional workers. And the research revealed a strong link between participation in adult education and previous achievement in further or higher education.

It also confirmed the general supposition that there was a lower participation rate from working class areas.

The second part—a questionnaire sent out to 5 per cent of adult education students—is expected to be published in January. The two documents will then provide a detailed picture of adult education.

The team's work has been sponsored by the Sheffield working

group on mature entry to education, which includes representatives from all the city's interested agencies.

Eventually, the working group intends to establish an adult education counselling and information service, and to produce proposals to hire new adult students.

A conference organized last year by the working group led to the research project and the compilation of a compendium of adult education courses in Sheffield.

So far 150 copies of the compendium have been printed and are being sent to the working group's chairman by Hill Barnes, a Sheffield University's extramural department.

For the questionnaire and the student sample was extracted by taking part in day and evening courses run by the local education authority and Sheffield University's extramural department.

But the sample was confined to students on open access courses. The team discovered that friends and neighbours appeared to have an important role to play in motivating and sustaining attendance at adult education classes.

Most of the students in the sample were found to be living within a mile and a half of their adult education centre, and there were links between students and car owners, and the provision of regular bus services.

School catchment areas proved a significant factor, according to the report. Participation rates also appeared to be affected by the location of adult education sub-centres at lower or middle schools—where parents were more familiar with the surroundings.

The team calculated participation rates per 1,000 population for each government ward in Sheffield. This revealed a wide range of participation—a high of 106.5 in 1,000, and a low of only 9.6 in 1,000.

The report says: "The picture tends to confirm the general impression that the more working class areas of Sheffield have lower participation rates."

An isolation map was constructed, smoothing out the data to reveal small local variations, to produce an overall trend. This revealed "mountains" of high participation, flatter plains of more equal involvement, and "valleys" of low density attendance.

It was also linked to the 1971 census for South Yorkshire. The report adds: "The high peak of adult education in the west of the city was found to correlate strongly with a high percentage of owner-occupied dwellings, while the lowest points to the north and west occurred in council-owned property, and usually the older council estates."

The percentage of persons classified as employers, managers and professional workers tends to be highest in the areas which have a high adult education involvement.

The strongest correlation found was that of the distribution of persons in employment with an Ordinary or Higher National Certificate, a level or degree. The highest incidence of adult education participants followed virtually exactly the highest incidence of those with previous attainment in further and higher education.

Conversely, those areas with low proportions of persons having such attainments have also low numbers of persons involved in adult education classes.

The report concludes: "The general picture is that the present participants tend to come from areas where houses are owner-occupied, where there are low numbers of persons to a room, and from areas where a greater proportion of the population are employers, managers or professional workers. Most of all, they tend to come from areas where a high percentage of the population has already some attainment in further or higher education."

The Location and Characteristics of Adult Education Participants in Sheffield, 1976-1977. Adult Education Information and Survey Project. Dyson House, Sheffield Polytechnic, Pond Street, Sheffield.



Everybody knows the old story about the management school where lecturers seldom locate the right classrooms, the photocopy is perpetually out of action, the key to the audio-visual centre has inexplicably vanished and the student bar runs at a whopping loss.

A visit to the Anglian Regional Management Centre quickly dispels these apocryphal stories of that kind. The centre's modern site at Danbury Park near Chelmsford runs with spectacular efficiency and the student bar, needless to say, makes a handsome profit.

Just how much that reveals about the educational character of an institution is hard to say. But the ARMC, the first of the regional management centres set up by the government five years ago, is widely regarded as one of the few outstanding successes of a national management education strategy that has been stilted by its critics.

In those five years the ARMC staff has shot up from around 50 academic staff to nearer 80, and the range and reach of its courses have expanded at the same pace. It offers full and part-time courses in a broad spectrum of management specialisms, and its staff have undertaken numerous consultancy projects in Britain and overseas. Its physical resources, too, have grown impressively and the main site of Danbury is well equipped with residential accommodation, conference facilities, close-circuit television and computer terminals.

Ironically, what has held up the development of many of the other 11 RMCs have been largely managerial problems. Apart from a few lucky ones such as Sheffield, Portsmouth and Bristol, which were based on single polytechnics, most of them have had to negotiate a series of complex college mergers before starting work.

The Northern RMC, for example, is linked to both Teesside and Sunderland Polytechnics, and another had to be cobbled up by Slough College of Technology, High Wycombe College of Technology and Oxford Polytechnic. In many cases the marriage between institutions was tense and competitive, and inattentive officials hampered the development of what were intended to be "centres of excellence" in management education.

The Anglian centre could have been beset by similar problems. It was born out of a potentially difficult merger between North East London Polytechnic and the management centre of the Mid Essex Technical College, but conducted the merger with a conspicuous absence of friction. Despite the structural changes and the rapid increases in staff numbers over the past five years the ARMC recorded hardly any resignations. The original staff from both institutions stayed on and now identify closely with the aims of the new centre.

The merger was helped by the fact that the centre's dean, Mr Bryan Littlewood, was an RMC enthusiast who had been a prime mover in setting up national management education policy. Originally based at the Mid Essex Technical College's management centre at Danbury Park, he saw enormous advantages in merging with North East London Polytechnic—a much larger institution geared up to further and higher education which commanded large resources and would open up large tracts of north London as a market for management services.

Mr Littlewood's team anticipated government policy and began laying down plans for the new centre five years before the national RMC strategy was officially announced. The way ARMC rocketed ahead by attracting staff and resources owes as much to the dean's buccannery and managerial talents as to the goodwill of the institutions and authorities on either side.

He admits candidly that he wanted to lift the centre off the ground quickly to cash in on educational expansion before the recession arrived. "Most RMCs which dragged their feet for five years in my view, if they have been trapped by the cut in resources now."

But there were difficulties, too. The college and the polytechnic had each developed a different ethos and aimed at different levels of polytechnic concentrated on lower level management services such as work study and organization and methods, while the college emphasized short courses and middle management. More fundamentally, the college centre had developed an distinctive quasi-commercial mode of operating which was almost entirely alien to the traditions of the polytechnic.

The ease with which the two

Peter David reports on progress at the Anglian RMC Management centre that knows how to manage itself



A business game in progress.

finally fused was due to a number of factors. One was the successful application of what Mr Littlewood describes as "a very deliberate, classic management exercise" designed to liberate the "synergic" energy of the two staffs and overcome apathy. The staffs were shuffled into small working groups and set to work planning a new role for the management centre.

But the delicate handling of human sensitivities was probably less significant than an unusual administrative structure which enabled the centre to "plug in" to the polytechnic without sacrificing the strong links it had already built up with Mid Essex Technical College and colleges and employers throughout East Anglia.

Although formally linked to the polytechnic's academic board, the management centre has an academic board of its own and a separate "policy committee" which—with representatives from local authorities, industry and surrounding colleges—acts as a separate governing body for the ARMC.

The arrangement gives the centre a degree of autonomy not matched elsewhere in the polytechnic. Combined with its physical isolation, this has helped to overcome many of the problems encountered by other RMCs. Management centres generally attract students who are older and more affluent than those in ordinary polytechnic departments, and they have to be luxuriously equipped to attract highly motivated students to their short courses. The ARMC staff are convinced that if they had to share premises with other polytechnic departments, relations would be considerably soured.

Staff at the ARMC are apt to enthuse about the centre's own "inter-disciplinary" conferences at Keele of the turn of the 1950s. Unfortunately, in the two decades which have followed, teachers and social workers have moved little closer together, whether in training, methods of work, or ideology. A fifth column of would-be professors seems to have penetrated into our classrooms and social work departments.

The Keele conferences, however, led directly to one of Professor Halmos's main achievements—the series of Sociological Review Monographs. He gave up their editorship in 1973 but, by then, he had produced no fewer than 20 volumes, mostly symposia.

The first numbers consisted of the papers delivered at the inter-disciplinary conferences, but he widened their scope to include volumes on social medicine, casework, penology, professionalization, mass communications, and even Japanese and Latin-American sociology. Sociological Review Monographs represent an impressive monument to his range of his interests.

His preferred teaching method was the set-piece lecture. His European upbringing—he was born, and later studied, in Hungary—was reflected in his liking of his for the rule of the academic elite, remote in his audience, and holding forth in a large and reverential audience.

And he was very good at it. He had the presence and the eloquence for it. Students at his first-year sociology lectures always felt that they had not only had their minds enriched, but also that they had been present at an occasion, Theatre perhaps, but inspiring and highly impressive theatre.

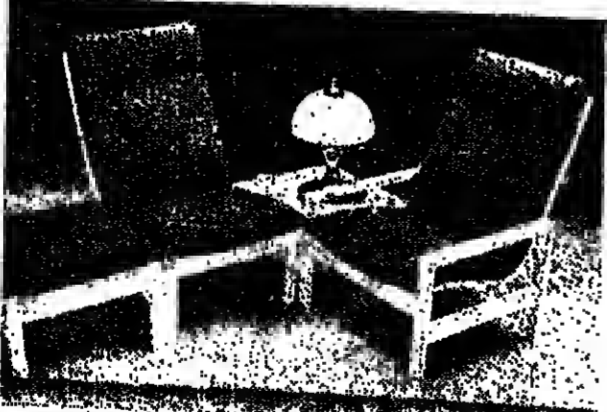
Perhaps, there was also a personal element to all this. Professor Halmos was the quintessential individualist, who went his own way and saw no reason to believe that it was the wrong way.

Many who disagreed with him will remember him with admiration and affection.

Howard Jones
The author is professor of social administration at University College, Cardiff.

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OBITUARY

Paul Halmos

Paul Halmos, professor of sociology in the Open University who died recently, was what is usually called a rare bird in academic circles—the fully-rounded man. The situation confronting him was well-described by Philip Lean, who looked back nostalgically to his knowledge was one of the great figures in the shape of the professor was introduced, and needing something to profess he invented the "subject" brooking up "knowledge" in the process.

Increasingly specialization has become the rule, and in the natural sciences, where there is so much to know, it is probably inevitable. Less justifiable is a kind of philistinism, which sees the growth of the subject within its rigidly defined boundaries, as more important than the understanding of life or truth.

Professor Halmos treated such narrow scholasticism with disdain. Beginning his academic career as a psychologist at Keele, he has made his professional status in that discipline by his interest in cultural aspects of society.

By his time he came in, Cardiff as professor of sociology, sociologists had lost most of their neo-Durkheimian fear of psychology, but some still raised their eyebrows at his hospitality to ideas from history, philosophy and social work. To mention clear evidence of a moral commitment in his work.

Political commitment had become more acceptable. All of which left him unmoved. Whether he was engaged in studying solitude, the formation of social norms, the ideology of social workers, or the personal service trend of contemporary society, he moved around his chosen field with a complete indifference to subject demarcation lines.

Especially a dark corner, he wasted no time before illuminating it, irrespective of whichever group of aesthetes might claim to be the custodians of it.

This unifying temper led him into his early work in stimulating co-operative thinking between teachers and social workers. Many on both sides of this professional divide will remember those stimulating



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Computer Data-base Organization/216 James Martin. All the alternatives in designing and implementing a data base are explored in this through revision of a highly acclaimed text. October '77 200pp £12.29

Hopes that learning programme will go on

The National Development Programme in Computer Assisted Learning (NDPCAL) is in its final death throes. On December 31, 1977, after exactly five years of life, it finishes, having spent £2.6m.

Dr J. W. Hambrton, of University College London, using a package.

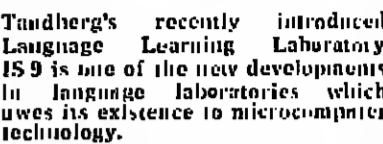
Dr J. W. Hambrton, of University College London, using a package. Some other institutions only short-term contracts have been forthcoming for 1978.

COMPUTERS

Techniques to bridge a management gap Plug in and tape the difference

The old saying "You can't see the wood for the trees", is particularly apt in describing many aspects of management education. The "trees" are the many techniques often taught in isolation, while the "wood" is the application of these techniques to real-life problems.

Second deliberations be reflected by total success. The real world differs from this in a number of ways, not least in the mechanics of the processes of applying management techniques.



Student using Tandberg 189 Lan-guage Learning Laboratory.

R. E. H. Heady B. H. Pereira

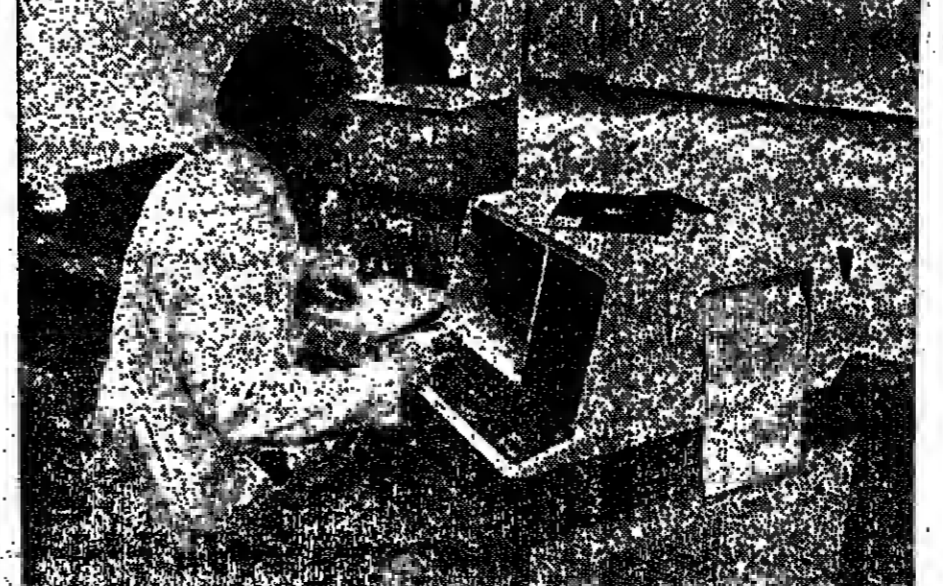
The authors are both senior lecturers in the department of administrative and management studies at Newcastle upon Tyne Polytechnic.

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Great savings in research laboratory applications within industry, government or education have been made possible by the advent of microcomputers, ever real years. How further development in enabling the microcomputer to replace several of the functions of other scientific instruments is the focus of the development in Digital Equipment Corporation with more than 60,000 computer systems in operation, representing a one billion dollar business.

Developed into the POP-8, it became the workhorse of the scientific and engineering community who discovered that microcomputer systems could do what people had done, and better than larger systems. Out of this earlier development has emerged a range of computers one of which is the DEC-LAB family of hardware and software, specifically designed for laboratory applications by the Laboratory Data Products Group within Digital Equipment.

This provides a wide spectrum of capabilities for an equally wide diversification of laboratory environments, aimed at chemists, physicists, biologists, psychologists and engineers. In addition, it is also a general purpose system.



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The DEC-LAB 1103 was designed with the first time user in mind, but it is a completely capable system with central processor, main memory, a choice of tape interfaces, graphic or hard copy terminals, real time operating system and program language BASIC and FORTRAN. They are well suited to single user or dedicated applications, collecting real time data from analog or digital laboratory instruments and performing calculations.

Richard Hood

The author is director of the National Development Programme in Computer Assisted Learning.

Now mini bubbles, bits and beads

Computers have been so consistently overvalued that it is euphoric about their future to invite disbelief. Yet the fact is that education could advance or regress rapidly depending on computers themselves.

The author is in the department of physics at the University of Surrey.

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BOOKS

A tireless social reformer



Lord Beveridge, Director of the London School of Economics and Political Science 1919-37; from a painting by Sir William Nicholson in the possession of the school.

In her final chapter, in which she draws together the threads of this substantial but engrossing study. Dr Harris places Beveridge as "the last of the great line of all-round social reformers who have played a significant part in moulding the institutions of Britain over the past two hundred years", and compares him to Chadwick in particular, in both temperament and approach. It is perhaps a measure of the greater attention now given to social policy that Chadwick and other other nineteenth-century pioneers, Stimson, have received full biographical treatment only in our own time, whereas Beveridge has been commemorated only 14 years after his death. No one may doubt whether within the famous report of 1942, Social Insurance and Allied Services, Beveridge, for all his other achievements, would have been accorded the accolade of a historic place in history than many another distinguished public servant.

Folie à deux

Legends of the Thirties: Left and the Left in the 1930s by Ben Pimlott

Long, long ago, in the forties and fifties, American literary academics were enthralled by a vaguely best called the New Criticism. This was a creed invented to combat the Menace of Marxism.

Mr Pimlott, a determined parliamentary candidate and lecturer in politics at North University, puts most of his blame for these failures upon the Left, rather than upon such culprits as the Labour Party and Labour's Executive. He declares that the engagements fought by the Left in 1941 to 1949 were essentially a "fiction fight" rather than to anyone else.

Beveridge touched public life at many more points than can be recalled here, but one further quotation is irresistible. When engaged in the task of inflation control, the risk of inflation through wage demands, and John Robinson wrote accordingly, in terms which are truly too familiar a ring now.

Maurice Bruce

BOOKS Anti-social criticism

Song Through Everything: English Writers 1918-1940 by William H. Pritchard

room recently. If so, he is oddly unwilling to face the opposition in open argument. Instead, he expends much energy on shadow boxing with ghostly sociological critics, only one of whom (Ferry England) ever emerges, briefly, into the light.

Now the really irritating thing about the book is that there is much to be said for this view: there is scarcely a single important text of the period which is of interest primarily or social documentation—and it might have formed the basis for a major revaluation of these writers. For behind the nervous clowding, and the exaggerated fear of sullying his pages with "background", Pritchard's critical judgments are often sound and his enthusiasm infectious.

Norman Mackenzie

METHUEN

Poems of the Elizabethan Age

An Anthology by GEOFFREY G HILLER This anthology represents the poetry of the Elizabethan age through a selection of poems written in the five literary genres which were most popular in the period: the sonnet, lyric, satire, pastoral and Cavalier romance. Dr Hillier has thus made available the most important poetry of the period in its context, and provided an invaluable tool for teachers and students of Elizabethan literature.

The Sources of Shakespeare's Plays

Kenneth Muir In this book Kenneth Muir discusses all of Shakespeare's sources. He has produced a textbook which provides the student and the general reader with an admirable account of Shakespeare's craftsmanship, and will help them to move at a well-balanced interpretation of the plays.

The Development of Shakespeare's Imagery

The seminal work was first published in English in 1951, although its formidable reputation dates from the original publication in German in 1936. In an important New Preface to this edition, Professor Claman discusses the developments that have taken place in Shakespearean criticism since this work's original publication.

THE CRITICAL IDIOM

Title to be published on December 8

The Short Story

The short story is probably the most widely read of all modern genres, and is favoured by many distinguished fiction-writers. In this study Dr Reid examines some preliminary problems of definition, and traces in broad outline the emergence of what is usually meant by "the modern short story".

Dramatic Monologue

The author discusses the range of dramatic monologue and develops, from first principles, a new analysis of its elusive nature. In doing so, he shows why this literary form has remained popular for poets of many periods, from Ovid to Philip Larkin and Ted Hughes.

Window on the house of fiction

The Novel Today edited by Malcolm Bradbury

It has arrived. In truth, the novel has arrived self-consciousness; but it has done its utmost ever since to make up for lost opportunities. It is this feature which certainly helps to make it stand out from other forms of fiction, but it is not the participants so much as the argument itself which declares it.

is Henry James's Great Prefaces—not directly, but indirectly. James's immediate concerns, the elaborate meditations on the craft of fiction are not what engage us, but rather the way in which he has taken as a whole, build up a poetics of the novel, and provide on idiom for critical discussion, releasing metaphors still potent in our thinking. Of none of these is this truer than the central image of "the house of fiction" which provides a title for the essay in which Frank Kermode binds together his interlocking history and from fable. The novel is as old as the novel. When we hear B. S. Johnson saying "Life does not tell stories," talking stories as telling lies or Muriel Spark, "I don't claim my ovals are truth—I claim that they are fiction, out of which a kind of truth emerges", or in a different tone, C. P. Snow, "I believe there are certain things you can say about society which they are not permitted to say about themselves, because the nature of contemporary fiction."

On the way to that question a great number of useful things get said. No one can read this collection without feeling that Malcolm Bradbury has simply vindicated his editorial claim that "taken together, the essays display an important, progressive alliance of the best in the nature of contemporary fiction. Consequently, the book makes a tremendously useful reading for anyone wishing to come to terms with the novel."

Jan Gregor

Chapman & Hall

Smith, Marx, and After

Orthodox economic theory is today being challenged by radical economists of various persuasions, who often claim that the economics put forward by earlier writers like Adam Smith and Karl Marx is more relevant to our present-day problems than that put forward by many of their successors. This book discusses the work of Smith and Marx from the point of view, and relates it to the more recent contributions both of those who have worked in the same tradition and of those who have rejected it.

Public Policy and the Corporation

This book explores for the first time the theoretical and empirical issues which are raised by an analysis of the impact of public policy on the behaviour of corporations, and in particular the responses of companies to changes in the personal and corporate tax system.

Biology from Oxford

Human Biology

An Introduction to Human Evolution, Variation, Growth, and Ecology

G. A. Harrison, J. S. Weiner, J. M. Tanner, and N. A. Barnicot

The revised edition contains 29 chapters of well written and informative text devoted to specific topics within the broad areas of human evolution, genetics, variation in modern populations, and human ecology. . . . Although it is designed for students of the biological and medical sciences, there can be little doubt that, with the increasing importance of this subject area, many already qualified scientific and other professionals will find it good value for money. Certainly it is the best volume with this sort of title which I have seen so far. *New Scientist*. £10 paper covers £5.50

Man in Urban Environments

Edited by G. A. Harrison and John B. Gibson

Highly useful, fact-cramped symposium by individual experts on the environmental consequences of living in cities, covering physiology, disease, psychology, and mental health. Much of the information has been published in much greater bulk elsewhere; but as a compendium this is without equal. *Nat. Society*. This book is based on contributions to a study group which the Royal Society set up to look at urban biology and to find out what further research is needed. All concerned are to be congratulated on a book of absorbing interest. *The Lancet*. £7.50

Human Growth and Development

Wolfson College Lectures 1976

Edited by Jerome S. Bruner and Alison Garton

The papers in this volume, written for a wide audience by eminent scientists, working in the fields of biology, child psychology, psychobiology, psychiatry, and education, explore some of the biological, social, and political factors involved in growing up in modern society. They indicate the strong admixture of biological and social determinants that influence behaviour during child development, and two main themes run through the book: the importance of achieving social connection, and the active nature of childhood. The contributors are Jerome Bruner, Eve Clark, Robert Hindu, Bärbel Inhelder, Michael Rutter, and Jack Tizard. £4.50 paper covers £1.95 forthcoming

James J. Fox

HARVEST OF THE PALM

Ecological Change in Eastern Indonesia

The economy of the small islands of Roti and Savu is centred on the intensive use of the looter palm tree, whose juice is the staple of the people's diet and whose leaves, leafstalks, and trunks provide the wherewithal for their housing and most of their needs.

This economy, marvellously stable and adaptive and gradually expanding, is described in detail by Mr Fox and contrasted with that of the large neighbouring islands, Timor and Sumba, where slash and burn agriculture has led to steady ecological deterioration. An examination of the history of the islands over several hundred years and the effects of the policies of successive colonial governments adds depth to the ethnographic presentation and is vital to the anthropological analysis of social change. 304 pages; illustrated £10.25.

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BOOKS

In safe keeping

A Nature Conservation Review
edited by D. A. Ratcliffe
Cambridge University Press, vol. 1, £35.00; vol. 2, £35.00
ISBN 0 521 2159 X and 21403 3

A milestone in the development of nature conservation in Britain is marked by these two attractive volumes. They present for the first time a full, authoritative appraisal of our national capital of habitat and wildlife, and offer criteria for assessing conservation interests, as well as detailing sites of high conservation value.

The review was launched in 1965 by the then Nature Conservancy, with the aim of compiling a countrywide list of sites whose safeguarding was of prime and urgent importance. At that time there were about a hundred National Nature Reserves. The review has shown the wisdom of the conservation strategy propounded in 1947 and also of the early selection of "key sites" to represent the major types of vegetation.

But as a result of the review some gaps in the representation have been recognized and filled. Currently 150 sites are safeguarded as NNRs and some 3,500 sites of special scientific interest have been notified. Of these, 735 are placed in the two new classes of four-point grading systems, and are of at least national importance. These sites form the basis of the present review, the more numerous lower grade sites being excluded.

Published on behalf of the Nature Conservancy Council and the Natural Environment Research Council, the Review represents the culmination of an enormous effort to which many have contributed, most notably Dr Derek Ratcliffe, now Chief Scientist of the NCC, who acted as scientific assessor for the review, and who himself wrote large parts of the text. Although numerous authors are involved, this does not detract, and a systematic layout has been adopted for the entire book.

The book volume 1 is a comprehensive account of seven major ecosystem types ("forests, moorland, heath, and artificial ecosystems, "range of ecological variation" is first considered with emphasis on vegetation as a key to characterization. This is appropriate since the vegetation serves as an integrated expression of environmental influences and is a major determinant of the animal component. These synoptic accounts are of interest not only to biologists—many important ecological aspects are included and these sections provide a virtually textbook coverage—but also to landowners, administrators, and planners.

Free-living forms

Biology of Nematodes
by Neil A. Croll and Bernard E. Matthews
Blackie, £6.25
ISBN 0 216 90294 0

Biology of Nematodes attempts to present an undergraduate's unified view of the whole range of free-living and parasitic forms. It emphasizes similarities between nematodes and uses photographs and diagrams wherever possible to illustrate points in the text. Most lists are to primary sources; exceptionally, the reader is directed to a textbook.

The book is well-written but it will be judged in a crowded arena as the authors recognize when they refer to recent textbooks on nematodes. Biology of Nematodes has the resilience to survive the competition. I especially recommend the four chapters on nervous muscle and sensory organs; the behaviour of nematodes; feeding and nutrition; and development. Chapters seven to 11 are essentially about parasitic nematodes, indeed, facts on parasitic nematodes predominate. The book is on the treatment and preven-

Procreation

Reproduction
by Jack Cohen
Butterworth, £4.95
ISBN 0 408 70788 4

Conventionally, biologists use the term "reproduction" to refer to the physiological processes of the organism, the passage of information from one generation to the next, and the production of offspring. What Cohen has done is to take his title literally, and to consider the reproductive processes in any way in which they are relevant to the health of the organism. In addition, he has included chapters on the reproductive processes of plants, fungi, and animals.

The first chapter seeks to deal with some basic concepts, such as the kinds of activities of the organism which are relevant to the study of the synapses. The title "breeding" is used in an unnecessarily fine one. A definition comes next, followed by a chapter on "Fertilization and development". The individual contributions vary in their style and approach. Cohen's chapter on the function of transmitter substances is probably the most interesting. Cohen's intentions, since it is essentially a review which presumes little specialist knowledge and does not deal with a level above

How cells differ

The Differentiation of Cells
by Norman Maclean
Edward Arnold, £12.00 and £5.95
ISBN 0 7131 2567 7 and 2567 5

This is the first volume in a series of specialized texts, Genetics—Principles and Perspectives (General Editors, K. R. Lewis and B. Johu) which covers advanced undergraduate and postgraduate students. The book sets out to provide a comprehensive review of the many interesting factors involved in one of the most fundamental problems in biology: the differentiation of cells.

Two major points are made early on in the book. First, differential gene expression, though no doubt important in cell differentiation, does not, of itself, explain how the initial commitment is made. Second, the initial commitment to one of a range of potential developmental pathways "use only a few genes" and is controlled by a hundred or so separate programmes of gene expression. On the first point, I consider that a clearer distinction should have been made in a number of places in the book between differentiation, the process which involves the selection of the appropriate set of genes for potential expression in a particular tissue-type specific cell lineage, and the production of the various cell types by the regulation of the expression of the various genes within that set. Hormones are among the factors which can influence both processes and both can involve altered gene expression. Thus, the question does arise: what is a very readable book, well

Insect control

Biochemistry
by R. R. M. Smith
Blackie, £11.50
ISBN 0 216 90294 0

The book ends with brief accounts of insect pheromones and new approaches to insect control—the material presented in the earlier chapters. The book has been carefully planned and written to include a large amount of information which is clearly presented throughout, though it is not a comprehensive work. Some topics in insect biochemistry, such as nutrition and neurotransmitters, receive little attention. Possibly due to space limitations, a few statements are made without explanation or reference, which may frustrate the reader. In general references are to more advanced books and review articles, although a good number of original papers (into 1976) are also cited. The book is good value for money and has very little competition.

BOOKS

Research under review

by G. A. Cottrell and P. N. H. Butterworth

According to the editors, Synapses . . . to cover the structure and function of synapses by . . . the passage of information from axon terminal to postsynaptic cell. . . . It would be something of a surprise to find Cohen has done so. Cohen's intentions, since it is essentially a review which presumes little specialist knowledge and does not deal with a level above

The book also contains some 70 abstracts of voluntary papers presented at the symposium. Here the presentation is extremely compressed and is likely to be unhelpful to the non-specialist. It seems doubtful whether such fragments within a book of this kind. The book has a handsome binding, obvious care has been taken with the photographic reproduction and it is modestly priced. If it is unlikely to achieve the broad appeal hoped for by the editors, it nevertheless provides an interesting reading for those with a special interest in research on the synapse.

A. I. Matus

Modern Biology and its Human Implications

Modern Biology and its Human Implications
by J. A. V. Butler
Blackie, £3.45
ISBN 0 216 90294 0

The author has tried to give a picture of the life process as a whole and to show that although there is much that is mechanical, the higher manifestations of life are not reducible to the status of automata by the advances of science. It is a thought-provoking book that will stimulate discussion among science students from many disciplines both at school and in higher education.

Introduction to Ecology

Introduction to Ecology
by R. Dajoz, translated by A. South
Blackie, £7.50
ISBN 0 216 90294 0

This synthesis of ecology using levels of organization of increasing complexity will be particularly useful for the newcomer to ecology. Although this is an introductory text the author's approach is comprehensive and, unusually for a book at this level, contains a wide range of information. The translator has ensured that, where appropriate, English rather than French reference sources are given.

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Biological Sciences 1977

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The Eel Biology and management of anguillid eels

Histochemistry of Secretory Processes

Introduction to Biometrical Genetics

Mechanics and Energetics of Animal Locomotion

Sixth Edition Plant Viruses

Outline Studies in Biology

A Biochemical Approach to Nutrition

Enzyme Kinetics

Insect Biochemistry

Polysaccharide Shapes

Receptors and Recognition Series

Series A

Volume 3

Series B

The Specificity and Action of Animal Bacterial and Plant Toxins

Microbial Interactions

Now available as Science Paperbacks

Secondary Metabolism in Plants and Animals

Full details of all of these books are available from Chapman & Hall

BOOKS

Getting around

Mechanics and Energetics of Animal Locomotion

There has been a renaissance of the study of animal structure and function

The book, long ignored, starts with a consideration of the types of muscle

The chapters on the coordination of locomotion, though useful, are marred by problems of balance and stability

The chapters on walking, swimming and flight are all interesting

Defence against disease

Defence Mechanisms in Plants

While we have become familiar with the difficulties of securing effective control of crop diseases

In recent years we have seen a rapid expansion of interest in biochemical and physiological studies of pathogens and disease

Professor Deverell has now produced an excellent survey of the mechanisms involved in the defence of plant cells against attack by pathogens

but somewhat hard work. Through-out, there is the very laudable object of describing the processes from a sound mathematical basis

Relatively easy, by contrast, is the chapter on burrowing. Here, the advantages of various arrangements of the body wall musculature and of the components of the body in worms and clams are described

The book ends with a chapter on locomotion by cellular organisms. There is a nice account that draws the mechanical parallels between the symmetrical beat of cilia, relating these to the hydrodynamic and to the sliding that occurs between the filaments that run along the organelle

The book as a whole must be judged partly by its faults. There are errors and omissions in the reference lists, particularly in the earlier chapters

Against these criticisms, I must come out overwhelmingly in favour of the book. It is timely, authoritative, remarkably comprehensive and readable

H. C. Bennet-Clark

Life support

Microbial Ecology

A book on microbial ecology can be incorporated into university courses

The book's chapters would be instantly accepted by a wide range of university courses

It seems to be a genuine attempt to bridge the interdisciplinary gap between microbiology and ecology

The author emphasizes that microbial ecologists are in the vanguard of a new century

Having emphasized the importance of methods of soil biology

Artificial Organs

Edited by R. M. Kenedi, J. M. Courtney, J. D. S. Gaylor and T. Gilchrist

General Microbiology

Fourth Edition Edited by Roger Y. Stanier, Edward A. Adelberg and John L. Ingraham

Wildfowl of Europe

Myrlyn Owen

For further details please write to Rosemary David (THES), The Macmillan Press Ltd., 4 Little Essex Street, London WC2R 3LF

The Athlone Press UNIVERSITY OF LONDON

BOOKS

Behind the scenes

The Pursuit of Nature: Informal Essays on the History of Physiology

The continued progression of scientific discovery is dependent on the dissemination of the results of research work

The first essay by A. L. Hodgkin is a marvellous account of the events which led to his experiments on nerve conduction

Other articles are by W. Fuldborg on the work on chemical transmission of the impulse across the junction between nerve and muscle

For anyone who wishes to go beyond the outline of discovery and to see a little behind the scenes, reading this beautifully written volume is an entertaining, informative, and highly agreeable way of doing so

O. C. J. Lippold

Plant pathology

Plant Pathology and Plant Pathogens

This book is beautifully written with a conciseness and clarity that make it a joy to read

weight compounds such as nucleic acids, proteins, enzymes and low molecular weight compounds such as toxins, phytoalexins and growth regulators in the host pathogen interaction

But the authors are being less than fair in saying that the relationship of the chemical industry with research pathologists is not entirely satisfactory

W. W. Fletcher

Abortion

MATCOLOP POLIS, PETER DIGGORY and JOHN PEHL

The first comprehensive account of abortion that deals with its history, sociological, clinical and demographic aspects and which faces the ethical issues head-on

Hard covers £17.50 net Paperback £5.95 net

Paperback edition

Introduction to Fungi

JOHN WEBSTER

A valuable addition to the literature on fungi. It is authoritative and should be of real value to the university student interested in a taxonomic and morphological approach to fungi

Hard covers £12.00 net Paperback £4.75 net

Analytical and Quantitative Methods in Microscopy

Edited by G. A. MBHK and H. Y. ELDER

This book describes some of the latest techniques that biologists are beginning to use in order to obtain numerical data on biological problems using microscopical techniques

Hard covers £12.00 net Paperback £4.75 net

A Handbook of Numerical and Statistical Techniques

With examples mainly from the life sciences

J. H. POLLIARD

A handbook designed for experimental scientists, particularly those in the life sciences

The Lancet

Announcing a new journal ...

The Behavioral and Brain Sciences

This new quarterly journal will provide critical interdisciplinary commentary on submitted articles in all areas of psychology, neuroscience, behavioral biology and cognitive science

Subscription: £85.00 per annum Individuals may subscribe for £17.50 per annum

Also of interest

Journal of Anatomy

The Journal publishes original work and book reviews in the fields of anatomy, embryology and histology

Subscription: £80.00 per volume £90.00 per annum

Journal of Physiology

The Journal publishes reports on original research into all branches of physiology and the Proceedings of the Physiological Society

Subscription: £160.00 per annum (U.K.) £190.00 per annum (Elsewhere)

Transaction of the British Mycological Society

The Journal publishes papers and book reviews in the fields of mycology, both taxonomic and experimental, and plant pathology

Subscription: £88.00 per volume

Journals may be ordered from a bookseller, subscription agent or direct from Cambridge University Press



CAMBRIDGE UNIVERSITY PRESS

Books from Longman

Applied Plant Anatomy
D F Cutler
This book will enable the non-specialist to understand the basic structure of plants.

Practical Plant Physiology
J Roberts and D G Whitehouse
The wide range of experiments and tests in this book have been designed specifically for those operating on a limited budget.

Systemic Fungicides
Second edition
R W Marsh
Since 1972, when the first edition of this book was published, there has been a massive increase in the production and utilization of systemic fungicides.

Notable additions include a summary list of the systemic fungicides now in commercial use. This gives chemical, common and trade names.



Biochemical

Introduction to Modern Biochemistry
Fourth Edition
by P. Kuriyan
Academic Press, £11.30

Biochemistry: the chemical reactions of living cells
by David E. Metzler
Academic Press, £17.75

A few years ago, pure organic chemistry was still an adequate background for the study of biochemistry.

For students who literally do need an introduction to modern biochemistry the book is still not a bad buy.

This is provided by Metzler's excellent Biochemistry, the Chemical Reactions of Living Cells.

Complex fusion

Immunobiology of Gametes
edited by M. Kidlin and M. U. Johnson
Cambridge University Press, £14.50

Fertilization is arguably the most crucial single step in the entire reproductive process.

This book is largely a detailed and critical assessment of the state of knowledge on the membrane properties of the mammalian gametes and their related immunology and genetics.

The scope of the book goes beyond that indicated by its title. The organization of the membranes and the distribution and mobility of various cell surface determinants on both eggs and spermatozoa, and the changes effected by fertilization.

Adaptable crabs
The Biology of Crabs
by G. P. Warner
Black, £6.95

There can be few of us whose sea-side experiences do not include an encounter with crabs.

Crabs are decapods, and represent about 17% of all crustacean species. They range in size from the giant Japanese soldier crab with a claw spread of some 3.5 metres, to the smallest crab of less than 1 cm which inhabits mud shells.

Crabs are everywhere, and represent a major part of the diet of many animals. They are also a major pest of many crops and are a nuisance to many people.

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UNIVERSITY OF NATAL
DEPARTMENT OF MECHANICAL ENGINEERING
DURBAN

Senior Lecturer, Mechanical Engineering (Control)
Applications are invited from suitably qualified persons for appointment to the post of

Senior Lecturer, Mechanical Engineering (Control)
The salary scale attached to the post is:

£8 820 a 360 to £9 900 a 450 to £11 250 per annum plus a 10 per cent bonus

The commencing salary will be dependent on the qualifications and experience of the successful applicant.

Applications should state whether they have an obligation in respect of Public Service Commission Bursaries.

Applications should be sent to the Registrar, University of Natal, King George V Avenue, Durban 4001.

THE UNIVERSITY OF THE SOUTH PACIFIC
Applications are invited for two

TUTOR IN THE SYSTEMS DEVELOPMENT PROGRAMME
Applications are invited for a one-year contract appointment as Tutor in the Systems Development Programme.

EDUCATIONAL SOCIOLOGY
Applications are invited from graduates for a three-year appointment as Lecturer in Education.

Chair in the Faculty of Law
Applications are invited for a Chair in the Faculty of Law from January 1, 1978.

UNIVERSITY OF SHEFFIELD
RESEARCH OFFICER
Applications are invited for the post of Research Officer for a period of two years from 1st January 1978.

THE UNIVERSITY OF PAPUA NEW GUINEA
ASSISTANT LIBRARIAN
Applications are invited for the post of Assistant Librarian (Cataloguing) Grade 1 or 2.

JAMES COOK UNIVERSITY OF NORTH QUEENSLAND
GRADUATE DIPLOMA OF MATERIAL CULTURE
Applications are invited for enrolment on the Graduate Diploma of Material Culture.

UNIVERSITY OF EAST ANGLIA
NORWICH

SENIOR RESEARCH ASSOCIATE (Hydrology/Climatology/Geology/Earth Sciences)
The Climatic Research Unit requires a person with a background in one or more of these fields to investigate possible changes in precipitation patterns in the British Isles.

SENIOR RESEARCH ASSOCIATE (Microbiology/Applied Mathematics)
The Climatic Research Unit requires a person with experience in one or both of these fields to work as part of a team investigating changes in high-latitude atmospheric circulation patterns.

RESEARCH ASSOCIATE (Microbiology/Climatology)
The Climatic Research Unit requires a person with experience in aquatic microbiology/limnology and paleolimnology.

Applications (one copy only) giving full details of age, qualifications and experience, together with the names and addresses of two persons to whom reference may be made, should be lodged with the Administrative Assistant, Climatic Research Unit, School of Environmental Science, University of East Anglia, Norwich, Norfolk NR4 7TJ.

UNIVERSITY OF SINGAPORE
PHARMACOLOGY
Applications are invited for teaching appointments in the Department of Pharmacology.

Applications are invited for teaching appointments in the Department of Pharmacology. Candidates must have first degree in medicine or science and appropriate post-graduate qualifications.

For further details write to the Librarian at the University.

Conditions of appointment are available from the Secretary, The Graduate Diploma in Material Culture, James Cook University, c/o 4811, Australia.

UNIVERSITY OF WESTERN AUSTRALIA
Perth ITALIAN
Applications are invited for appointment as Lecturer.

DAHLHUSIE UNIVERSITY
HALIFAX, NOVA SCOTIA, CANADA
SCHOOL OF BUSINESS
Applications are invited for several faculty positions in the Management Science Area of the expanding Business School.

Applications are invited from graduates for a three-year appointment as Lecturer in Education.

Applications are invited for a Chair in the Faculty of Law from January 1, 1978.

Applications are invited for several faculty positions in the Management Science Area of the expanding Business School.

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John Wiley & Sons Ltd

GENE EXPRESSION Vol. 3: Plasmids and Phages
by S. Levin, Hassarukin Teittala et al.
This volume discusses the genetic systems of plasmids and bacteriophages, focusing on the means used to transfer genetic information and the strategies responsible for reproducing autonomous genetic elements.

THE BIOLOGY OF SYMBIOTIC FUNGI
by R. Cooke, Botany Department, University of Sheffield
A large number of examples are used to illustrate the different types of symbiosis between fungi and higher organisms, both animal and plant.

ANATOMY OF SEED PLANTS 2nd Ed.
by Katherine Esau, University of California, Santa Barbara
An authoritative text on the structure and development of seed plants. Presents the latest concepts in plant anatomy through experimental, histochemical and ultrastructural approaches to the study of biological material.

INTRODUCTION TO SOIL MICROBIOLOGY 2nd Ed.
by M. Alexander, Cornell University
This characterizes soil microflora from descriptive and functional viewpoints, considering the biological processes that take place in the soil and their importance to soil fertility, plant growth, and environmental quality.

Academic Publishers
Every week The Times Higher Education Supplement is read by over 25,000 (including osteologists) in the U.K. For more details contact John Ledbrook, Advertisement Manager, on 01-837 1234.

The Times Higher Education Supplement

Reviewers

Maurice Benoit is author of 'The Ship of the Modern World and The Rise of the Welfare State'; John Colburn is Backer professor of cryptogamic botany at the University of Manchester 1.

Cloire Cross, author of Church and People 1450-1660, is senior lecturer in history at the University of York.

W. W. Fletcher is professor of biology at the University of Strathclyde; P. J. Hogarth is lecturer in biology at the University of York; O. J. Lippold is reader in physiology at University College London and author of Origin of the Alps Rhythms; S. C. Rooklin is lecturer in economics at the University of East Anglia; Ian Wright lectures in English at the University of Cambridge and is a fellow of Queens' College.

New from the Pitman Advanced Publishing Programme

The Origin & Early Evolution of Animals
by Earl D Hanson

This major work presents a fresh approach to phylogeny, the major unfinished task in biological studies. Part I develops a consistent and rigorous set of phylogenetic principles; Part II applies them to the evolution of the unicellular and the more primitive multicellular animals; and Part III offers a critical overview of the theory and the phylogenetic conclusions which it generates.

Earl D Hanson is Flisk Professor of Natural Science and Professor of Biology at Wesleyan University, Middletown, Connecticut.
Cased/680pp/130 line and half-tone illustrations
ISBN 0 273 01132 4/£23.00
Published October 1977

FURTHER DETAILS are available from Enquiries Executive, Pitman Publishing Ltd, 39 Parker Street, London WC2B 6SP.

Universities continued



Applications are invited for the following posts...

University of Sydney Lecturer in Italian

University of New England Armidale Lecturer in Economics

University of New South Wales Sydney Lecturers, School of History

University of Queensland Lecturer and Senior Tutor in Computer Science

University of Tasmania Lecturer or Senior Lecturer in Education

Australian National University Chair of Computer Science

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts...

UNIVERSITY OF PAPUA NEW GUINEA

Applications are invited for the following posts...

UNIVERSITY OF PAPUA NEW GUINEA TUTORSHIPS AND LECTURESHIPS AT GOROKA TEACHERS COLLEGE

UNIVERSITY OF QUEENSLAND Lecturer and Senior Tutor in Computer Science

Griffith University Brisbane School of Modern Asian Studies

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NELP North East London Polytechnic

DIRECTOR

Newcastle upon Tyne Polytechnic

Newcastle upon Tyne Polytechnic

THE POLYTECHNIC, HUDDERSFIELD

Polytechnics continued

THE POLYTECHNIC WOLVERHAMPTON
Department of Economics and Social Studies
PRINCIPAL LECTURER in POLITICS
To be subject leader for Politics, and in particular to lead the Politics contribution to a CMAA social science degree.

ULSTER COLLEGE THE NORTHERN-IRELAND POLYTECHNIC
Faculty of Social & Health Sciences
RESEARCH OFFICER
12 year appointment)
Salary Scale: £2,688-23,367

PLYMOUTH POLYTECHNIC
School of Behavioural & Social Science
LECTURER II SOCIOLOGY
Salary: £3,270-£5,453 (+ supplement range £468-£482 p.a.)

oxford polytechnic
Applicants are invited for the post of REGISTRAR (£7,927-£8,527)
who, as the chief administrative officer, is responsible to the Director for the administration of the Polytechnic, and is Clerk to the Governors.

NEWCASTLE UPON TYNE POLYTECHNIC
Department of Mechanical Engineering
LECTURER II IN PRODUCTION ENGINEERING
Applicants should possess a graduate qualification in Production or Mechanical Engineering and have relevant research or industrial experience.

MANCHESTER THE POLYTECHNIC
FACULTY OF MANAGEMENT AND BUSINESS
LECTURER II IN ACCOUNTING
Applicants should possess a graduate qualification in Accounting and have relevant research or industrial experience.

LONDON THE POLYTECHNIC OF CENTRAL LONDON
SCHOOL OF SOCIAL SCIENCES
LECTURER II IN ACCOUNTING
Temporary post for two years beginning 1 January, 1978.

WALE THE POLYTECHNIC POLYTECHNIC CYMRU
Applicants are invited for the post of DEPUTY HEAD OF SCHOOL OF SOCIAL SCIENCES, I-II-SOCIOLOGY
This is a temporary appointment for two years from 31st January, 1978.

Colleges of Education
CITY OF WAKEFIELD METROPOLITAN DISTRICT COUNCIL
BRETTON HALL
TUTOR IN DRAMA
Lecturer to take part in the teaching of drama in the department which now runs a two-year course including BA(Hons), BA(Hons) and BA(Hons) in Drama.

LONDON INCH LONDON EDUCATION AUTHORITY
PHILIPPA LAWRENCE AND FURZESBURY COLLEGE OF EDUCATION
Lecturer in Law
Applicants are invited from post-graduate institutions in law, education, or both.

Colleges of Further Education
LONDON BOROUGH OF ENFIELD EDUCATION COMMITTEE
EDMONTON COLLEGE OF FURTHER EDUCATION
VICE-PRINCIPAL (Group 4—Salary £8,118 (Inclusive of allowances))
Required for 1 May, 1978.

TRAFFORD COLLEGE OF FURTHER EDUCATION
Lecturer in Law
Applicants are invited for the post of Lecturer in Law in the Department of Law.

Announcements

Political Studies Association Social Science Research Council
POSTGRADUATE CONFERENCE IN POLITICS
The P.S.A. and S.S.R.C. are jointly sponsoring a conference at the London School of Economics, December 15-17, 1977.

Association of Scientific, Technical & Managerial Staffs
Day of Protest - November 16
ASTMS have organized a March to the House of Commons starting at 1 pm and ending with a lobby of all ASTMS MPs.

Research Posts
AUSTRALIA UNIVERSITY OF QUEENSLAND
POSTGRADUATE RESEARCH ASSISTANT
Applicants should possess a graduate qualification in the relevant field.

Colleges and Institutes of Higher Education
CHESHIRE COUNTY COUNCIL
RADGATE COLLEGE OF HIGHER EDUCATION
Principal, John R. Williams, M.A.
Applications are invited for the post of Lecturer II in Geography.

General Vacancies
COUNCIL FOR NATIONAL ACADEMIC AWARDS
Applicants are invited for two posts of Assistant Registrar with responsibilities in the following areas: (i) Business and Social Studies (ii) Research Degrees.

Department of Education and Science
PROJECT DIRECTOR
To undertake a study of the feasibility, desirability and cost of introducing a national information service on the transferability of educational credits for academic and vocational purposes.

HOSPITAL ENGINEERING CENTRE EASTWOOD PARK, FALFIELD, AVON
TWO LECTURERS
Candidates should be qualified to at least H.N.C. standard and have relevant mechanical, electrical or electronic engineering experience in either the Health Service or industry and/or teaching experience.

Librarians
LEICESTER THE POLYTECHNIC
LIBRARY ASSISTANT (Library Services)
Applications are invited from post-graduate institutions for the post of Library Assistant.

Colleges and Institutes of Technology continued
ABERDEEN ROBERT GORDON'S INSTITUTE OF TECHNOLOGY
SCHOOL OF MECHANICAL AND OFF-SHORE ENGINEERING
LECTURERS
In Mechanical and Production Engineering and Mechanical and Offshore Engineering with honours degree and industrial or research experience.

STRATHCLYDE DEPARTMENT OF EDUCATION
LECTURER 'A' SOCIOLOGY
Applicants should have an interest in Introductory Sociology and/or Sociological Theory, and preference will be given to those with teaching experience in the appropriate areas.

RESEARCH ASSISTANT * * PUBLIC ADMINISTRATION
Applications are invited for the post of Research Assistant in the area of Public Administration, to assist in current research. The successful applicant will be expected to register for a higher degree of the CNAA and should be a graduate qualified in one or more of the following areas: Public Admin., Economics and/or Politics.

PAISLEY COLLEGE DEPUTY LIBRARIAN
Applicants for this newly created position should be graduates with qualifications in librarianship. Experience in academic library work, especially on the administrative side, would be valuable.

General Vacancies continued
HOME-BA50 TUTORS
Part-time tutors working at home are required to prepare correspondence courses in various subjects for the B.Sc. (Open) degree.